Special Issue

Advances in Photoacoustic Imaging: Tomography and Applications

Message from the Guest Editor

Photoacoustic tomography imaging utilizes spatial variations of photon absorption within biological tissues. Methods include analytical formulations, such as backprojection, and computational model-based techniques like time inversion and iterative methods. However, these conventional methods are only approximate solutions due to incomplete measurement data and reliance on approximations for forward operators and acoustic models. Introducing additional a priori information can enhance the reconstruction process but is computationally intensive and time-consuming. There is a need for a new reconstruction method that mitigates incomplete data effects while reducing image interference. Deep learning frameworks and data-driven methods offer potential but face challenges in accuracy and robustness. Recently, high-performance generative models, such as GANs and diffusion models, have excelled in photoacoustic tomography image reconstruction. This Special Issue will focus on deep learning applications in photoacoustic tomography and improving accuracy in reconstruction. Deep learning shows great promise in this field and warrants further research.

Guest Editor

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Message from the Editor-in-Chief

The imaging term, specific with journal, is to be considered in its broadest sense. Image processing, image understanding and computer vision are all terms related to imaging acquisition, its processing and the extraction of relevant information from the scene to obtain the underlying knowledge. All tasks related to the above items are oriented toward specific applications in a broad range of areas and topics. The *Journal of Imaging* is conceived as an efficient vehicle in the scientific community for the communication and transmission of the progress and research results in the topics covered.

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